

EXPRESS MAIL NO.: EL668290435US
DATE DEPOSITED: MAY 31, 2001

[BREATHABLE PACKAGING SYSTEM AND METHODS]

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METHOD OF USING A FLORAL PACKAGE

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of copending application U.S. Serial No. 09/637,385, filed August 11, 2000, entitled METHOD OF USING A FLORAL PACKAGE; which is a continuation of U.S. Serial No. 09/301,661, filed May 28, 1999, entitled FLORAL WRAPPER UTILIZING A BREATHABLE PACKAGING MATERIAL, now abandoned; which is a continuation of U.S. Serial No. 08/447,488, filed May 23, 1995, entitled FLORAL WRAPPER UTILIZING A BREATHABLE PACKAGING MATERIAL, now U.S. Patent No. 6,022,627, issued February 8, 2000; which is a divisional of U.S. Serial No. 08/325,747, filed October 19, 1994, entitled FLORAL WRAPPER UTILIZING A BREATHABLE PACKAGING MATERIAL, now U.S. Patent No. 5,743,398, issued April 28, 1998.

[continuation-in-part of copending application U.S. Serial No. 08/188,183, filed January 28, 1994, entitled METHOD FOR WRAPPING AN OBJECT WITH AN EMBOSSED MATERIAL HAVING AN ADHESIVE THEREON; which is a continuation of U.S. Serial 07/968,798, filed October 30, 1992, entitled METHOD FOR WRAPPING AN OBJECT WITH A MATERIAL HAVING PRESSURE SENSITIVE ADHESIVE THEREON; which is a continuation of

U.S. Serial No. 07/865,563, filed April 9, 1992, entitled METHOD AND APPARATUS FOR COVERING PORTIONS OF AN OBJECT WITH A SHEET OF MATERIAL HAVING A PRESSURE SENSITIVE ADHESIVE COATING APPLIED TO AT LEAST A PORTION OF AT LEAST ONE SURFACE OF THE SHEET OF MATERIAL, now U.S. Patent No. 5,245,814, issued September 21, 1993; which is a continuation of U.S. Serial No. 07/649,379, filed January 31, 1991, entitled METHOD FOR WRAPPING AN OBJECT WITH A MATERIAL HAVING PRESSURE SENSITIVE ADHESIVE THEREON, now U.S. Patent No. 5,111,638, issued May 12, 1992; which is a continuation of U.S. Serial No. 249,761, filed September 26, 1988, entitled METHOD FOR WRAPPING AN OBJECT WITH A MATERIAL HAVING PRESSURE SENSITIVE ADHESIVE THEREON, now abandoned. This application is also a continuation-in-part of copending application U.S. Serial No. 08/253,648, filed June 3, 1994, entitled WRAPPING A FLORAL GROUPING WITH SHEETS HAVING ADHESIVE OR COHESIVE MATERIAL APPLIED THERETO; which is a continuation of U.S. Serial No. 07/965,585, filed on October 23, 1992, entitled WRAPPING A FLORAL GROUPING WITH SHEETS HAVING ADHESIVE OR COHESIVE MATERIAL APPLIED THERETO; which is a continuation of U.S. Serial No. 07/893,586, filed June 2, 1992, entitled WRAPPING A FLORAL GROUPING WITH SHEETS HAVING ADHESIVE OR COHESIVE MATERIAL APPLIED THERETO, now U.S. Patent No. 5,181,364, issued January 26, 1993; which is a continuation of U.S. Serial No. 07/707,417, filed May 28, 1991, entitled WRAPPING A FLORAL GROUPING

WITH SHEETS HAVING ADHESIVE OR COHESIVE MATERIAL APPLIED THERETO, now abandoned; which is a continuation of U.S. Serial No. 07/502,358, filed March 29, 1990, entitled WRAPPING A FLORAL GROUPING WITH SHEETS HAVING ADHESIVE OR COHESIVE MATERIAL APPLIED THERETO, now abandoned; which is a continuation-in-part of U.S. Serial No. 249,761, filed September 26, 1988, entitled METHOD FOR WRAPPING AN OBJECT WITH A MATERIAL HAVING PRESSURE SENSITIVE ADHESIVE THEREON, now abandoned.

[0002] This application is also a continuation-in-part of co-pending application U.S. Serial No. 08/108,093 filed August 17, 1993, entitled ARTICLE FORMING SYSTEM; which is a continuation of U.S. Serial No. 08/024,573, filed March 1, 1993, entitled ARTICLE FORMING SYSTEM; which is a continuation of 07/464,694, filed January 16, 1990, entitled ARTICLE FORMING SYSTEM, now U.S. Patent No. 5,208,027, issued May 4, 1993; which is a continuation of U.S. Serial No. 219,083, filed July 13, 1988, entitled ARTICLE FORMING SYSTEM, now U.S. Patent No. 4,897,031, issued January 30, 1990; which is a continuation of U.S. Serial No. 004,275, filed January 5, 1987, entitled ARTICLE FORMING SYSTEM, now U.S. Patent No. 4,773,182, issued September 27, 1988; which is a continuation of U.S. Serial No. 613,080, filed May 22, 1984, entitled ARTICLE FORMING SYSTEM, now abandoned.]

FIELD OF THE INVENTION

[0003] This invention relates to decorative material and particularly, material having a controlled atmosphere which permits a defined permeability of specific substances and/or gases, said material also having substances which inhibit both excessive moisture and/or substances which inhibit the growth of microorganisms, said material used to wrap objects, and methods of using same.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] Figure 1 is a perspective view of **[the]** a breathable packaging material constructed in accordance with the present invention showing **[the]** an upper surface, a corner of the sheet of material turned back for illustration purposes only to show **[the]** a lower surface.

[0005] Figure 2 is a top plan view of the upper surface of the **[first sheet of material constructed in accordance with the present invention]** breathable packaging material of Figure 1, the upper and lower surfaces thereof being identical.

[0006] Figure 3 is a perspective view of **[the]** an upper surface of a modified sheet of **[material similar to the sheet of material of Figure 1 but showing]** breathable packaging material constructed in accordance with the present invention, the modified sheet of breathable packaging material having a round aperture

formed in the center [of the sheet of material] thereof, the round aperture being covered by a round [second] sheet of material sized slightly larger than the round aperture, the [second] round sheet of material connected to the sheet of breathable packaging material.

[0007] Figure 4 is a cross sectional view of Figure 3 taken at 4-4 showing the [second] round sheet of material [34] connected to and covering the round aperture in the sheet of breathable packaging material.

[0008] Figure 5 is a perspective view of a plurality of sheets of breathable packaging material constructed in accordance with the present invention forming a continuous roll of sheets, the sheets separated by perforations, and the roll partially unrolled to reveal a single sheet still attached thereto.

[0009] Figure 6 is a perspective view showing a roll of breathable packaging material wherein the roll of breathable packaging material is disposed in a dispenser for separating the roll into separate sheets of material and dispensing the separate sheets of material from the roll of breathable packaging material.

[0010] Figure 7 is a perspective view showing a roll of breathable packaging material wherein the roll comprises a single sheet of material.

[0011] Figure 8 is a perspective view of a pad of sheets of breathable packaging material constructed in accordance with the present invention, showing an edge of the top sheet lifted, exposing the next sheet of material.

[0012] Figure 9 is a perspective view of the pad of sheets of breathable packaging material shown in Figure 8, but showing the top sheet of material being detached from the next sheet of material.

[0013] Figure 10 is a perspective view of a roll of breathable packaging material constructed in accordance with the present invention, showing a knife edge being actuated by an actuator to cut at least a portion of the roll of breathable packaging material into elongated strips of breathable packaging material.

[0014] Figure 11 is a perspective view of the roll of breathable packaging material of Figure 10, but showing the knife edge being actuated in a second direction, to cut the elongated strips of breathable packaging material into small pieces of breathable packaging material.

[0015] Figure 12 is a perspective view of a floral grouping disposed on a sheet of breathable packaging material.

[0016] Figure 13 is a perspective view of the floral grouping of Figure 12 being wrapped in one method of wrapping.

[0017] Figure 14 is a perspective view of the floral grouping of Figures 12 and 13 wrapped in a conical fashion.

[0018] Figure 15 is a perspective view of another method of using a sheet of breathable packaging material to wrap a floral grouping in a cylindrical fashion.

[0019] Figure 16 is a perspective view of another embodiment of the sheet of breathable packaging material of the present invention shown with a pot disposed upon the sheet of material.

[0020] Figure 17 is a perspective view of the sheet of breathable packaging material of Figure 16, but showing the sheet of material partially wrapped about the flower pot.

[0021] Figure 18 is a perspective view of the sheet of breathable packaging material of Figures 16 and 17 wrapped about a flower pot.

[0022] Figure 19 is a perspective view of a pre-formed decorative pot cover formed from a sheet of breathable packaging material.

[0023] Figure 20 is a perspective view of a potted plant, the pot substantially covered by the pre-formed decorative pot cover of Figure 19.

[0024] Figure 21 is a perspective view of another embodiment of the sheet of material of Figure 1 in accordance with the present invention, but showing a wrapper comprising a sleeve for wrapping

a floral grouping, constructed in accordance with the breathable packaging material of the present invention.

[0025] Figure 22 is a perspective view of the wrapper of Figure 21 but showing the floral grouping disposed inside of the wrapper with the bloom portion near the first end and the stem portion extending from the second end.

[0026] Figure 23 is a perspective view of the wrapper of Figure 22 but showing the wrapper crimped about the stem portion of the floral grouping, the crimped portion forming overlapping folds.

[0027] Figure 24 is a perspective view of a modified wrapper similar to the wrapper shown in Figure 23 but having the bonding material disposed on the outer surface of the sleeve, and showing the wrapper crimped about the stem portion of the floral grouping, the crimped portion forming overlapping folds.

[0028] Figure 25 is a perspective view of another embodiment of the present invention, showing a wrapper comprising a sleeve for covering a flower pot, the vertical perforations torn at the upper portion of the sleeve.

[0029] Figure 26 is a perspective view of the wrapper of Figure 25, but showing the vertical perforation torn open and the circumferential perforations being torn.

[0030] Figure 27 is a perspective view of the wrapper of Figures 25 and 26, but showing the upper portion torn away and the remaining lower portion of the sleeve forming a decorative cover about the pot.

[0031] Figure 28 is a perspective view of still another embodiment of the present invention, showing a wrapper for a floral grouping, wherein the wrapper is sized to wrap a single bloom.

[0032] Figure 29 is a perspective view of yet another embodiment of the present invention, showing a modified sheet of material similar to the sheet of material shown in Figure 1, the modified sheet of material being transparent and having a bonding material disposed about the periphery, an apple disposed near the first side of the sheet of material, a portion of the sheet of material starting to overlap the apple.

[0033] Figure 30 an elevational side view of the sheet of material and apple shown in Figure 30, but showing the sheet of material overlapping and sealing to itself, thereby sealing the apple therein, forming a breathable package.

[0034] Figure 31 is a perspective view of still yet another embodiment of the present invention, showing a decorative cover for a floral grouping contained within a pot, the decorative cover being capable of being sealed and forming a breathable package about the pot and floral grouping.

[0035] Figure 32 is a side elevational view of the embodiment of Figure 31, showing the decorative cover formed into a breathable package and sealed.

[0036] Figure 33 is a side elevational view of the embodiment of Figure 31, showing the decorative cover formed into a breathable package and sealed.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The Embodiments of Figures 1-4

[0037] Several disadvantages exist in providing a wrapping or packaging for fresh flowers. These same drawbacks also apply to providing a wrapping for fresh produce and/or food. Further, many of these same disadvantages also apply to providing a wrapping for medical supplies/equipment, and for a wrapping or packaging for pharmaceutical products.

[0038] In the case of a floral grouping, for example, it is desirable to have a wrapping which permits a flow of a selected atmosphere to the packaged floral grouping. Such wrapping/package further would often use desiccants thereon or therein to reduce excess moisture, so that the **[growth of likelihood]** likelihood of growth of unwanted microorganisms is reduced. Along this same line, such packaging further frequently would have antimicrobial agents incorporated therein or disposed thereon to reduce and/or eliminate unwanted microorganisms, such

as, but not by way of limitation, fungi, bacteria, algae, and the like. Such an invention would also include non-fogging agents, so that the item packaged would remain clearly seen through such packaging.

[0039] The present invention contemplates a breathable packaging material comprising a sheet of material having at least portions thereof which permit selective control of the atmosphere to which the contents are exposed (termed "controlled atmosphere" materials and/or "controlled atmosphere characteristics"), that is, the material is permeable to some elements, substances and/or compositions (in either liquid or gaseous form), but impermeable to others. Further, the sheet of material incorporates therein and/or has disposed thereon a desiccant and/or an antimicrobial agent. In this manner such items as floral groupings, fresh produce, food, pharmaceutical products, and/or medical supplies/equipment may be packaged such that the item contained therein is maintained in the most commercially viable manner, and for an ideal or more controlled length of time.

[0040] Turning now to Figure 1, designated therein by the general reference numeral 10 is a breathable packaging material. The breathable packaging material 10 comprises a sheet of material 11.

[0041] The sheet of material 11 has an upper surface 12, a lower surface 14, and an outer periphery 15. As shown in Figures 1 and 2, the outer periphery 15 further comprises a first side 16, a second side 18, a third side 20 and a fourth side 22.

[0042] A bonding material 24 (See Figures 12-14) may be disposed on the upper surface 12 of the sheet of material 11 [(not shown)]. Alternatively, however, the sheet of material 11 may be free of a bonding material. The bonding material 24, if present, [is] can be disposed [in one embodiment] substantially over the upper surface 12 of the sheet of material 11. The bonding material 24 may also be disposed upon the upper surface 12 [in] as a strip [of bonding material 24] (Figures 12-14), although the bonding material 24 also could be applied to the upper surface 12 of the sheet of material 11 in the form of spaced apart spots, or the bonding material 24 also could be disposed on the upper surface 12 of the sheet of material 11 in any other geometric or non-geometric or asymmetric forms, and in any pattern, including fanciful patterns.

[0043] The sheet of material 11 has a thickness in a range from about 0.1 [mils] mil to about 10 [mils] mil. Frequently, the sheet of material 11 has a thickness in a range from about 0.2 [mils] mil to about 3.5 [mils] mil. The sheet of material 11 is constructed of a material which is flexible.

[0044] The sheet of material 11 may be any shape, and a rectangular shape is shown in Figure 1 only by way of example. The sheet of material 11, for example only, may be square, rectangular, circular or any other geometric, non-geometric, asymmetric or fanciful shape, such as, but by way of example only, heart shaped.

[0045] The sheet of material 11 may be constructed of a single layer of material or a plurality of layers of the same or different types of materials. The layers of material comprising the sheet of material 11 may be laminated together or connected together by any method described herein or known in the art.

[0046] The sheet of material 11 has a length 26 extending between the third and fourth sides 20 and 22, respectively, of the sheet of material 11. The sheet of material 11 also has a width 28 extending between the first and the second sides 16 and 18, respectively, of the sheet of material 11.

[0047] As noted earlier, a bonding material 24 may be disposed on the upper surface 12 of the sheet of material 11, or, alternatively, to any other surfaces of any sheets of material described herein. The bonding material 24 may be applied as a strip or as spots or other shapes. One method for disposing a bonding material, in this case an adhesive, on a sheet of material is described in U.S. Patent No. 5,111,637, entitled, "Method For Wrapping A Floral Grouping", issued to Weder et al. on May 12, 1992 and which is hereby incorporated herein by reference. Another

method for disposing a bonding material in order to laminate two sheets of material is described in U.S. Patent No. 4,297,811, entitled, "Laminated Printed Foil Flower Pot Wrap With Multicolor Appearance," issued to Weder on November 3, 1981.

[0048] The term "bonding material" when used herein means an adhesive, possibly a pressure sensitive adhesive, or a cohesive. Where the bonding material is a cohesive, a similar cohesive material must be placed on the adjacent surface for bondingly contacting and bondingly engaging with the cohesive material. The term "bonding material" also includes materials which are heat sealable and, in this instance, the adjacent portions of the material must be brought into contact and then heat must be applied to effect the seal. The term "bonding material" when used herein also means a lacquer, which may be applied to the sheet of material and, in this instance, heat, sound waves, or vibrations, also must be applied to effect the sealing of the lacquer.

[0049] It will be appreciated that the sheet of material 11 may form a single or multiple sheets of material [64] 11, pads of material, and/or rolls of material, the latter two being described in detail below. Further, the sheet of material 11 may consist of designs or decorative patterns which are printed, etched, and/or embossed thereon using inks or other printing materials. An example of an ink which may be applied to one or more surfaces of the sheet of material 11 is described in U.S. Patent No. 5,147,706,

entitled, "Water Based Ink On Foil And/Or Synthetic Organic Polymer", issued to Kingman on Sep. 15, 1992 and which is hereby incorporated herein by reference.

[0050] The sheet of material 11 may have various colorings, coatings, embossings, flocking and/or metallic finishes, or other decorative surface ornamentation applied separately or simultaneously or may be characterized totally or partially by pearlescent, translucent, transparent, iridescent or the like, qualities. Each of the above-named characteristics may occur alone or in combination and may be applied to the upper surface 12 and/or lower surface 14 of the sheet of material 11. Moreover, each surface of the sheet of material 11 may vary in the combination of such characteristics. The sheet of material 11 may be opaque, translucent, clear, tinted transparent, or any combination thereof.

[0051] The bonding material 24 may be used to laminate two or more sheets of material 11 together and may also be tinted or colored by using a dye, pigment, or ink. In this manner, different coloring effects are provided, and the multiple sheets of material 11 may be given a colored appearance by use of a colored bonding material 24. U.S. Patent No. 5,147,706 described immediately above provides one water based ink which may be used to tint one or more sheets of material 11 or which may be used to tint the bonding material 24.

[0052] In a preferred embodiment, the sheet of material 11 is a plastic material constructed from a plastic film having controlled atmosphere characteristics, that is, a film which is permeable to some substances and/or gases, but impermeable to others. Such a plastic film is available from Hercules Incorporated, Hercules Plaza, Wilmington, DE 19894. Different plastic films, or combination of films, may be utilized according to contents of the package and the controlled atmosphere desired within such packages, as described in detail below.

[0053] Controlled atmosphere film and methods of making said films are disclosed and described in detail in U.S. Patent No. 4,842,875, entitled, "Controlled Atmosphere Package", issued to H. Anderson on June 27, 1989; U.S. Patent No. 4,879,078, entitled, "Process For Producing Uniaxial Polyolefin/Filler Films For Controlled Atmosphere Packaging", issued to M. Antoon, Jr. on November 7, 1989; U.S. Patent No. 4,910,032, entitled, "Water-Permeable Controlled Atmosphere Packaging Device From Cellophane and Microporous Film", issued to M. Antoon, Jr. on March 20, 1990; U.S. Patent No. 4,923,650, entitled, "Breathable Microporous Film And Methods For Making It", issued to M. Antoon, Jr. et al. on May 8, 1990; U.S. Patent No. 5,011,698, entitled, "Breathable Microporous Film And Methods For Making It", issued to M. Antoon, Jr., et al. on April 30, 1991; U.S. Patent No. 5,045,331, entitled, "Container For Controlled Atmosphere Packaging", issued to M.

Antoon, Jr. on September 3, 1991; U.S. Patent No. 5,160,768, entitled, "Curable Silicone-Coated Microporous Films For Controlled Atmosphere Packaging", issued to M. Antoon, Jr. on November 3, 1992; and U.S. Patent No. 5,254,401, entitled, "Packaging Material For Controlled Atmosphere Packaging", issued to R. Kelch et al. on October 19, 1993, all of which are hereby specifically incorporated by reference herein.

[0054] The sheet of material 11 is constructed from any suitable wrapping material which is formed and manufactured to provide a controlled atmosphere, or which incorporates those features to a controllable degree from one or more other materials. Further, the sheet of material 11 must be capable of being wrapped about a flower pot or floral grouping, used as a sleeve or wrapper for a flower pot and/or floral grouping, including, but not by way of limitation, a single item, such as a single flower, a single item of produce, or a single medical supply/equipment. Further, the sheet of material 11 may be used as a shredded decorative material, such as, but not by way of limitation, confetti, decorative grass, tinsel, glitter, sequins, flakes, and the like. Further, the sheet of material 11 must also be suitable for making small die-cut items, such as decals, labels, stickers, stars, and the like. Frequently, the sheet of material 11 comprises plastic film, but the sheet of material 11 may comprise paper (the term "paper" as used herein means treated or untreated paper, corrugated paper or

cardboard or any other form of paper material), cellophane, foil, metallized film, fabric (woven or nonwoven or synthetic or natural), burlap, or combinations thereof.

[0055] The term "plastic film" as used herein means a film comprising a thermo-plastic resinous material, such as, but not by way of limitation, a polymer such as, for example only, a polypropylene. The term "plastic film" as used herein also means a film comprising a naturally occurring polymer such as cellophane. A plastic film, as contemplated and described in detail herein, is relatively strong and not as subject to tearing (substantially non-tearable), as might be the case with paper or foil.

[0056] The sheet of material 11 also has a desiccant 30 which is disposed upon and/or incorporated in the sheet of material 11. Such desiccants 30 include, for example, but not by way of limitation, calcium chloride and silica gel. It will be understood that a number of desiccants are known to those having ordinary skill in the art, and it will be appreciated that the precise amount of desiccant(s) 30 disposed on or incorporated in the sheet of material 11 is dependent upon the results sought and the items to be packaged therein. Generally, moisture will be reduced in the packaged item due to the contact of the sheet of material 11 with the item until such time as the desiccant 30 is substantially dissipated from the sheet of material 11. The duration of action of the desiccant 30 will depend, in part, upon the desiccant(s)

used, the concentration of the desiccant(s) used, and the exposure of the [of the] desiccant(s) to atmospheric conditions.

[0057] The sheet of material 11 also has an antimicrobial agent 32 and/or a non-fogging agent 31 and/or a bonding material 24 disposed thereon and/or incorporated therein. The term "antimicrobial agent" as used herein means an agent possessing antifungal properties, antibacterial (bacteriostatic or bacteriocidal) properties, and/or antimicrobial properties. "Antimicrobial agent(s)" inhibits and/or prevents the growth of antifungal properties on articles such as a floral grouping, fresh produce, and medical equipment or supplies. Antimicrobial agents which may be utilized with various materials are disclosed and described in detail in U.S. Patent No. 3,044,885, entitled, "Impregnated Sheets For Preserving Perishable Foodstuffs", issued to B. Loehr on July 17, 1962; U.S. Patent No. 3,493,464, entitled, "Fungus-Resistant Paper Containing Metallic Quinolinolate Formed In Situ And Process Thereof", issued to A. Bowers et al. on February 3, 1970; U.S. Patent No. 3,653,873, entitled, "Ethylenic Sulfilimine Compositions For Controlling Fungi, Bacteria and Algae", issued to H. Bayer on April 4, 1972; U.S. Patent No. 3,728,213, entitled, "Antibiotic Paper", issued to C. Hinz on April 17, 1973; U.S. Patent No. 3,864,468, entitled, "Activated Polymer Materials and Process For Making Same", issued to S. Hyman et al. on February 4, 1975; U.S. Patent No. 3,959,556, entitled,

"Antimicrobial Blended Yarns and Fabrics Comprised of Naturally Occurring Fibers", issued to W. Morrison on May 25, 1976; U.S. Patent No. 3,998,944, entitled, "Fungicidal Paper", issued to W. Long on December 21, 1976; U.S. Patent No. 4,008,351, entitled, "Film Or Sheet Material Having Antibacterial And Antifungal Activities", issued to M. Inoue et al. on February 15, 1977; U.S. Patent No. 4,111,922, entitled, "Hydrophilic Random Interpolymer From Quaternary Ammonium Monomers And Method For Making Same", issued to C. Beede et al. on September 5, 1978; U.S. Patent No. 4,343,853, issued to W. Morrison on August 10, 1982; U.S. Patent No. 4,401,712, entitled, "Antimicrobial Non-Woven Fabric", issued to W. Morrison on August 30, 1983; U.S. Patent No. 4,533,435, entitled, "Antimicrobial Paper", issued to H. Intili on August 6, 1985; U.S. Patent No. 4,663,077, entitled, "Microbiocidal Compositions Comprising An Aryl Alkanol And A Microbiocidal Compound Dissolved Therein", issued to N. Rei et al. on May 5, 1987; U.S. Patent No. 4,666,706, entitled, "Delayed Release Insecticidal Composition And Method Of Making Same", issued to R. Farquharson et al. on May 19, 1987; U.S. Patent No. 4,743,448, entitled, "Organic Carrier With Integrated Active Substances", issued to M. Bahadir et al. on May 10, 1988; U.S. Patent No. 4,888,175, entitled, "Aseptic Packaging", issued to K. Burton, Jr. et al. on December 19, 1989, and U.S. Patent No. 5,242,052, entitled, "Antimicrobial Material And Methods", issued to D. Weder

on September 7, 1993, all of which are hereby specifically incorporated by reference herein.

[0058] It will also be understood that many antimicrobial agents are known in the art. It will further be appreciated that the precise amounts of antimicrobial agent(s) 32 used is dependent upon the results sought and the items to be packaged. Generally, microorganisms will be eliminated or inhibited in the packaged item due to the contact of the sheet of material 11 with the item until such time as the antimicrobial agent 32 is substantially dissipated from the sheet of material 11. The duration of action of the agent(s) 32 will depend, in part, upon the agent(s) used, the concentration of the agent(s) used, and the exposure of the [of the] agent(s) to atmospheric conditions.

[0059] The sheet of material 11 may also have a non-fogging agent [(not shown)] 31 disposed thereon or incorporated therein. It will be appreciated that non-fogging agents are known in the art. It will further be appreciated that the precise amounts of non-fogging agents 31 used is dependent upon the results sought and the items to be packaged. Generally, fogging of the packaging will be eliminated or inhibited in the packaged item due to the contact of the sheet of material 11 with the item until such time as the non-fogging agent 31 is substantially dissipated from the sheet of material 11. The duration of action of the agent will depend, in part, upon the agent(s) used, the concentration of the agent(s)

used, and the exposure of the [of the] agent(s) to atmospheric and/or packaged conditions.

[0060] The antimicrobial agent 32, the desiccant 30, the non-fogging agent 31 and/or the bonding material 24 may be disposed upon or incorporated into the sheet of material 11 by any method known in the art, including, but not by way of limitation, spraying, brushing, immersing the sheet of material in the antimicrobial agent 32, desiccant 30 the non-fogging agent 31 and/or bonding material 24, and (in the case of the antimicrobial agent 32, the desiccant 30 and/or the non-fogging agent 31) exposure of the sheet of material 11 to agent-containing gas and/or desiccant-containing gas, or mixing and/or incorporating the desiccant 30 and/or the non-fogging agent 31 and/or the antimicrobial agent 32 in a dye, pigment, ink, lacquer, or any combination thereof, or any other medium, which is then applied to the sheet of material 11. Further, it will be understood that the bonding material 24, the desiccant 30, the non-fogging agent 31 and/or the antimicrobial agent 32 may be disposed upon or incorporated in any item such as, but not by way of limitation, tape, labels, stickers, decals, and the like, and then applied to the sheet of material 11. It will be appreciated that the entire sheet of material 11 may be treated in the manner described immediately above, or, alternatively, only a portion thereof may be treated. The antimicrobial agent 32, the non-fogging agent 31

and/or the desiccant 30 may also be incorporated into the sheet of material 11 before or during formation of the sheet of material 11.

[0061] The desiccant 30, the non-fogging agent 31 and/or the antimicrobial agent 32 may also be mixed with or incorporated in the bonding material 24, the bonding material 24 then being disposed upon at least a portion of the sheet of material 11. Methods for such mixing and/or incorporation are [know] known in the art, as are methods for disposing bonding material on sheet material. The desiccant 30, the non-fogging agent 31 and/or the antimicrobial agent 32 may also be mixed with or incorporated into a lacquer, the lacquer then being disposed upon at least a portion of the sheet of material 11.

[0062] The desiccant 30, the non-fogging agent 31 and/or the antimicrobial agent 32 may alternatively be disposed upon the sheet of material 11 via microcapsules. Suitable microcapsules and methods which may be utilized with the above-referenced materials (i.e., desiccants, antimicrobial agents, non-fogging agents and/or bonding materials) are disclosed and described in detail in U.S. Patent No. 4,990,381, entitled, "Multi-Layer Sandwich Sheet and Packaging Using The Said Sheet", issued to G. Holzner on February 5, 1991; U.S. Patent No. 4,988,557, entitled, "Fragrance Sampling Device", issued to J. Charbonneau on January 29, 1991; U.S. Patent No. 4,925,517, entitled, "Method Of Forming Fragrance Releasing Pull-Apart Sheets", issued to J. Charbonneau et al. on

May 15, 1990; U.S. Patent No. 4,848,929, entitled, "Volatile Emitting Container", issued to H. Rawl on July 18, 1989; U.S. Patent No. 4,769,264, entitled, "On Page Fragrance Sampling Device", issued to R. Dreger on September 6, 1988; U.S. Patent No. 4,661,388, entitled, "Pad Fragrance Sampling Device", issued to J. Charbonneau on April 28, 1987; U.S. Patent No. 4,606,956, entitled, "On Page Fragrance Sampling Device", issued to J. Charbonneau et al. on August 19, 1986; and U.S. Patent No. 4,528,226, entitled, "Stretchable Microfragrance Delivery Article", issued to N. Sweeny on July 9, 1985, all of which are hereby specifically incorporated by reference herein.

[0063] It will be appreciated that the desiccant 30, the antimicrobial agent 32, the non-fogging agent 31 and/or the bonding material 24 may cover a substantial portion of one or more surfaces of the sheet of material 11. Alternatively, the antimicrobial agent 32, the non-fogging agent 31, the desiccant 30, and/or the bonding material 24 may cover only limited portions of the sheet of material 11. The desiccant 30, the non-fogging agent 31 and/or antimicrobial agent 32 may be applied to a second sheet of material 34[, **this**] and the second sheet of material 34 [**then connecting**] can be connected to the sheet of material 11. Turning to Figures 3 and 4, the sheet of material 11 as shown [**is**] in Figures 1-2 is illustrated[, **but with**] having a round aperture 33 provided therein. The round aperture 33 is covered by a second sheet of

material 34, which is also round, and which has an outer periphery 35 which is slightly larger than the circumference of the round aperture 33.

[0064] It will be appreciated that the second sheet of material 34 has all of the structures defined for the sheet of material 11. It will be appreciated that a plurality of second sheets of material 34 having any one or any combination of antimicrobial agents 32, desiccants [34] 30, non-fogging agents 31 and/or bonding material 24 may be applied to the sheet of material 11 (not shown). It will further be understood that the sheet of material 11 may be free of bonding material 24 and/or desiccants 30 and/or non-fogging agents 31 and/or antimicrobial agents 32, wherein only one or more second sheets of material 34 have at least one of the latter described features, the second sheets of material 34 being connected to the sheet of material 11 (not shown).

Embodiments of Figures 5-7

[0065] Referring now to Figure 5, a breathable packaging material 10a comprising a modified sheet of material 11a is shown. The sheet of material [11b] 11a is identical to the sheet of material 11 shown in Figures 1-4 and described in detail previously, except that the sheet of material 11a is formed into a plurality of individual sheets of material 11a which are connected linearly together to form a roll 36. Each of the sheets of material 11a are provided with an upper surface 12a, a lower

surface 14a, and an outer periphery 15a. Preferably, the plurality of sheets of material 11a in the roll 36 are connected by perforations 38, as illustrated in Figure 5. Such a roll 36 permits one sheet of material 11a to be withdrawn from the roll 36, then severed or disconnected from the roll 36. Alternatively, the roll 36 may simply be formed as a continuous roll 36 of material without perforations (not shown), wherein a plurality of sheets of material 11a may be removed from the roll 36 by unrolling a portion of the roll 36, and using a separate cutting element (not shown) to sever the unrolled portion of the roll 36 of material to form the sheet of material 11a. The roll 36 may also be contained within a dispenser 40, as illustrated in Figure 6. When the roll 36 is disposed in the dispenser 40, a portion of the material is again unrolled, and a serrated cutting edge 42 contained within the dispenser 40, or a separate cutting element (not shown), severs the unrolled portion of the material from the roll 36 to form a sheet of material 11a. Any number of sheets of material 11a may form a roll 36 as long as it is possible to withdraw at least one sheet of material 11a from the roll 36 as described herein. A roll 36 of the breathable packaging material 10a formed by one sheet of material 11a is shown in Figure 7.

Embodiments of Figures 8-9

[0066] Shown in Figure 8 is a breathable packaging material 10b comprising a modified sheet of material 11b which is identical to the sheet of material 11 shown in Figures 1-4 and described in detail previously, except that the sheet of material 11b is formed into a plurality of sheets of material 11b which are stacked and aligned one on top of the other to form a pad 44 of sheets of material 11b.

[0067] The pad 44 comprises a top sheet 46 having a next sheet 48 disposed directly thereunder, with additional sheets of material 11b disposed under the next sheet 48, all sheets collectively forming the pad 44 of sheets of material 11b (one edge of the top sheet 46 lifted for illustration purposes only in Figure 8). The sheets of material 11b are generally aligned, and are connected together via a bonding material (not shown), such as, but not by way of limitation, a pressure sensitive adhesive.

[0068] When the top sheet 46 of material 11b is lifted and removed from the pad 44, as shown in Figure 9, the next sheet 48 becomes the new top sheet 46, and the sheet directly below the new top sheet 46 becomes the new next sheet 48. This process is repeated, until all of the sheets of material 11b in the pad 44 are removed.

[0069] In operation, a floral grouping or flower pot may be placed on the top sheet 46 in the pad 44 and the top sheet 46 may be wrapped about the floral grouping or flower pot and removed from the pad 44. Methods **[and means]** for forming a pad, using the sheets of material to wrap floral groupings, and removing sheets from a pad are known in the art. Methods of both forming a pad and wrapping floral groupings with sheets of material from a pad are described in U.S. Patent No. 5,181,364, entitled, "Wrapping A Floral Grouping With Sheets Having Adhesive Or Cohesive Material Applied Thereto", issued to Weder on January 26, 1993, which is hereby incorporated by reference herein.

Embodiments of Figures 10-11

[0070] Shown in Figure 10 is a modified roll 36c of breathable packaging material 10c which comprises at least a first sheet of material 11c. The roll 36c of breathable packaging material 10c is constructed exactly like the roll 36 of breathable packaging material 10a and the sheet of material 11 shown in Figures 1-4 and described in detail previously, except that the roll 36c of material 10c is not disposed in a dispenser constructed like the dispenser **[40c]** 40 shown in Figure 6. Rather, the roll 36c of breathable packaging material 10c is supported on a generally mounted shaft 50. The sheet of material 11c is withdrawn from the roll 36c of breathable packaging material 10c via a leading edge 52 until a predetermined length of the breathable packaging material

10c has been withdrawn from the roll 36c of breathable packaging material 10c. In this position, a portion of the breathable packaging material 10c is disposed under a knife edge 54 having a plurality of edges. The knife edge 54 is connected to an actuator 56 adapted to move the knife edge 54 in a first shredding direction 58 and in a second direction 60. When the predetermined length of the breathable packaging material 10c has been withdrawn from the roll 36c of breathable packaging material 10c, the actuator 56 actuates to move the knife edge 54 in the first shredding direction 58 to a position wherein the knife edge 54 severingly engages the breathable packaging material 10c to shreddingly cut a plurality of elongated portions of the breathable packaging material 10c from the roll [56c] 36c of breathable packaging material 10c. In another optional mode, the actuator 56 may then turn the knife edge 54 to a second shredding direction 60 wherein the knife edge 54 severingly re-engages the plurality of elongated portions of the breathable packaging material 10c, thereby causing the elongated portions of the breathable packaging material 10c to be severed into small (or long) pieces, for use as glitter, sequins, labels, decals, confetti, tinsel, decorating grass, and the like (it will be appreciated that this process is represented schematically in the drawings), as shown in Figure 11. The actuator 56 may comprise a hydraulic or pneumatic cylinder or a motor and gear arrangement or any other form of arrangement suitable for moving the knife edge

54 in the shredding directions 58 and 60. After the knife edge 54 has cuttingly severed the desired portion of sheet of breathable packaging material 10c from the roll 36c of breathable packaging material 10c, the actuator 56 is actuated to move the knife edge 54 in the storage direction 62 to a storage position disposed a distance above the breathable packaging material 10c as opposed to the cutting position previously described. Alternatively, the leading edge 52 of the sheet of material 11c may be run across a first knife edge 54 (not shown) set in the surface to form the elongated strips of breathable packaging material 10c, wherein the actuator 56 actuates a second knife edge (not shown) to cross-cut the elongated strips of breathable packaging material 10c into small pieces. Apparatus and methods for making decorative shredded materials and the like is disclosed in U.S. Patent No. 4,646,388, entitled, "Apparatus For Producing Weighed Charges Of Loosely Aggregated Filamentary Material", issued to Weder et al. on March 3, 1987, which is hereby incorporated by reference herein.

Embodiments of Figures 12-15

[0071] Turning now to Figures 12-15, as noted previously, the sheet of material 11d may be used to wrap a floral grouping 64. "Floral grouping" as used herein means cut fresh flowers, artificial flowers, a single flower other fresh and/or artificial plants or other floral materials and may include other secondary plants and/or ornamentation or artificial or natural materials

which add to the aesthetics of the overall floral arrangement. The floral grouping comprises a bloom (or foliage) portion 66 and a stem portion 68. However, it will be appreciated that the floral grouping 64 may consist of only a single bloom or only foliage (not shown). The term "floral grouping" may be used interchangeably herein with the term "floral arrangement".

[0072] In a method of use, a breathable packaging material 10d comprising a modified sheet of material 11d is provided, which is identical to the sheet of material 11 shown in Figure 1 and described in detail previously, except that the sheet of material 11d has a strip of bonding material 24d disposed on the upper surface 12d and near the first side 16d of the sheet of material 11d, the strip of bonding material 24d extending between the third side 20d, and the fourth side 22d, of the sheet of material 11d.

[0073] A floral grouping 64 having a stem portion 68 and a bloom portion 66 (Figure 12) is disposed on the upper surface 12d of the sheet of material 11d. The sheet of material 11d then is wrapped about the floral grouping 64 by taking the second side 18d, of the sheet of material 11d and rolling the sheet of material 11d in a direction 70 about the floral grouping 64 (Figures 12-13). The sheet of material 11d is continued rolled about the floral grouping 64 until a portion of the bonding material 24d is disposed adjacent a portion of the lower surface 14d of the sheet of material 11d and brought into bonding contact or engagement therewith (Figures 13-

14) thereby bondingly connecting the bonding material 24d on the upper surface 12d of the sheet of material 11d to a portion of the lower surface 14d of the sheet of material 11d for cooperating to secure the sheet of material 11d in a wrapped condition about the floral grouping 64 to provide a wrapper 72 wrapped about the floral grouping 64, as shown in Figure 14.

[0074] In the wrapped condition with the sheet of material 11d wrapped about the floral grouping 64 as shown in Figure 14, the wrapper 72 **[forms]** is provided with a conical **[shaped with an opened]** shape having an open upper end 74 and an **[opened]** open lower end 76. The wrapper 72 covers a portion of the bloom portion 66 of the floral grouping 64. A portion of the stem portion 68 of the floral grouping 64 extends through the **[opened]** open lower end 76 of the wrapper 72. The wrapper 72 is tightly wrapped about the stem portion **[66]** 68 of the floral grouping 64. The bonding material 24d on the sheet of material 11d may contact and engage some of the stem portion 68 of the floral grouping 64 to cooperate in securing the wrapper 72 tightly wrapped about the stem portion 68 and to prevent the floral grouping 64 from slipping or moving within the wrapper 72.

[0075] At least a portion of the floral grouping 64 is disposed within the wrapper 72. In some applications, the stem portion 68 of the floral grouping 64 extends through the open lower end 76 of the wrapper 72, as described before. In other applications, the

stem portion 68 of the floral grouping 64 does not extend through the open lower end 76 of the wrapper 72. In some applications, the wrapper 72 is tightly wrapped about the stem portion 68 of the floral grouping 64. The bloom portion 66 of the floral grouping 64 is disposed near the open upper end 74 of the wrapper 72 and the bloom portion 66 of the floral grouping 64 is visible via the open upper end 74 of the wrapper 72. In some instances, the bloom portion 66 of the floral grouping 64 may extend beyond the open upper end 74 of the wrapper 72. It will be appreciated that the open upper end 74 of the wrapper 72 may be closed by a flap (not shown) or any other method known in the art. Similarly, it will be understood that the open lower end 76 may be closed in the same manner as that described for the open upper end 74. It will be further appreciated that the floral grouping 64 may be sealed within the wrapper 72, or within any wrapper and/or package shown and/or described herein.

[0076] The wrapper 72, as shown in Figure 14, is generally conically shaped. The sheet of material 11d may also be wrapped about the floral grouping 64 to form a cylindrically shaped wrapper 78 as shown in Figure 15 or any other shape wrapper if desired in a particular application.

[0077] U.S. Patent No. 5,181,364, entitled, "Wrapping A Floral Grouping With Sheets Having An Adhesive Or Cohesive Material Applied Thereto", issued to Weder et al. on January 26, 1993, which

has been incorporated by reference herein above, discloses methods of wrapping a floral grouping in a cylindrically-shaped wrapper.

Embodiments of Figures 16-20

[0078] Referring now to Figures 16-20, as noted above, a sheet of material 11 may be used to provide a decorative cover 80 for an object such as a flower pot 82 or a potted plant. The term "flower pot" may be used interchangeably with the term "pot" and refers to any type of container used for holding a floral grouping 64 or a potted plant. Examples of flower pots 82 used in accordance with the present invention include, but not by way of limitation, clay pots, plastic pots, wooden pots, pots made from natural and/or synthetic fiber, and the like.

[0079] The flower pot 82 has an open upper end 84, a closed lower end 86, and an outer peripheral surface 88. An opening 90 intersects the open upper end 84 forming an inner peripheral surface 92 and a retaining space 94.

[0080] A breathable packaging material 10e comprising a modified sheet of material 11e, identical to the sheet of material 11 shown in Figure 1, is provided, except that the sheet of material 11e has either a bonding material 24e disposed substantially thereon, or is formed at least partially from a shape-sustaining material, or both. To cover the object, the sheet of material 11e may be manually or automatically formed about the outer peripheral surface

88 of the pot 82 or potted plant. Or, the sheet of material 11e may be formed into a preformed decorative cover 80 which is then placed about the outer peripheral surface 88 of the pot 82 or potted plant.

[0081] In a method of use, referring to Figures 16-18, to form a sheet of material 11e into a decorative cover 80 about a pot 82, both a flower pot 82 and a sheet of material 11e is provided. The pot 82 is disposed upon the upper surface 12e of the sheet of material 11e, so that the closed lower end 86 of the pot 82 rests upon a portion of the upper surface 12e of the sheet of material 11e.

[0082] In one embodiment of a manual application of the sheet of material 11e about the pot 82, the upper surface 12e of the sheet of material 11e is formed about the outer peripheral surface 88 of the pot 82 (Figures 17 and 18), thereby engaging the outer peripheral surface 88 of the pot 82 to form a decorative cover 80 about the pot 82 as shown in Figure 18, in a manner which is known to those having ordinary skill in the art. The lower surface 14e of the sheet of material 11e thereby becomes the outer surface 96 of the decorative cover 80.

[0083] Another method for wrapping the sheet of material 11e about a pot 82 for forming such a decorative cover 80 is shown in U.S. Patent No. 4,733,521, entitled, "Cover Forming Apparatus", issued to Weder et al., on Mar. 29, 1988, which is hereby

incorporated herein by reference. A decorative cover 80 formed by wrapping the sheet of material 11e about the flower pot 82 may be secured to the outer peripheral surface 88 of the pot 82 by the use of one or more bonding materials described herein. One particular method of securing the decorative cover 80 to the pot 82 is by applying a band (not shown) about the **[pot 82]** decorative cover 80 to hold the decorative cover 80 in place about the flower pot 82 such as is described in U.S. Patent No. 5,105,599, entitled "Means For Securing A Decorative Cover About A Flower Pot", issued to Weder on Apr. 21, 1992 and which is hereby incorporated herein by reference.

[0084] The term "band" when used herein means any material which may be secured about an object such as a flower pot, such bands commonly being referred to as elastic bands, rubber bands or non-elastic bands and also includes any other type of material such as an elastic or non-elastic string or elastic piece of material, non-elastic piece of material, a round piece of material, a flat piece of material, a ribbon, a piece of paper strip, a piece of plastic strip, a piece of wire, a tie wrap or a twist tie or combinations thereof or any other device capable of gathering the sheet of material to removably or substantially permanently form a crimped portion and secure the crimped portion formed in the sheet of material which may be secured about an object such as the flower

pot. The band also may include a bow if desired in a particular application.

[0085] Alternatively, the sheet of material 11e may be preformed into a decorative cover 80' having an opening [90'] 97 as shown in Figures 19-20. The decorative cover 80' is self-supporting by virtue of overlapping folds 99 which are bonded to each other, thereby forming a rigid structure, as shown in Figures 19-20. It will be appreciated that the self-supporting decorative cover 80' has the same structural features as those previously described for a pot 82. A [potted] plant 98 contained in the flower pot 82 can be disposed into the opening [90'] 97 of a preformed decorative cover 80', thereby resulting in a decoratively covered potted plant [98] 101 as shown in Figure [21] 20. Alternatively, the decorative preformed cover 80' may be used as a pot 82.

[0086] One method for forming such a preformed plant cover or pot cover is shown in U. S. Patent No. 4,773,182, entitled, "Article Forming System", issued to Weder et al. on Sep. 27, 1988, which is hereby incorporated herein by reference.

[0087] The decorative cover 80', whether formed manually or by an automatic [means] apparatus known in the art or described herein, may be sealed about the pot 82 and [floral grouping] plant 98 contained therein substantially as shown in Figures 31-33 by gathering the edges of the decorative cover 80 upward and sealing them together via a bonding material [24] 24e (Figures 31 and 32)

or a band (Figure 33), thereby creating a sealed **[package (not shown)]** decorative cover 80. Alternatively, a sheet of material 11 as shown and described herein may be disposed over the **[floral grouping 64]** plant 98 and upper portion of the decorative cover 80, and may be connected to the decorative cover 80 by banding, bonding material, or any method **[or means]** known in the art (not shown).

[0088] The term "potted plant" as used herein means a plant having a bloom or foliage portion **[66']** and a stem portion **[68']** as well as a root portion (not shown), the root portion disposed in a growing medium 100. The term "potted plant" as used herein also includes botanical items and propagules.

[0089] The term "botanical item" when used herein means a natural or artificial herbaceous or woody plant, taken singly or in combination. The term "botanical item" also means any portion or portions of natural or artificial herbaceous or woody plants including stems, leaves, flowers, blossoms, buds, blooms, cones, or roots, taken singly or in combination, or in groupings of such portions such as bouquet or floral grouping.

[0090] The term "propagule" when used herein means any structure capable of being propagated or acting as an agent of reproduction including seeds, shoots, stems, runners, tubers, plants, leaves, roots or spores.

[0091] The term "growing medium" when used herein means any liquid, solid or gaseous material used for plant growth or for the cultivation of propagules, including organic and inorganic materials such as soil, humus, perlite, vermiculite, sand, water, and including the nutrients, fertilizers or hormones or combinations thereof required by the plants or propagules for growth.

The Embodiments of Figures 21-27

[0092] Shown in Figures [21-28] 21-27 [and designated therein by the general reference numeral 102] is a modified [sheet of] breathable packaging material 10f forming a wrapper 102 for a floral grouping, which is constructed from the sheet of material 11, shown in Figures 1-4 and described in detail herein previously. The wrapper 102 comprises a sleeve 104 which is generally tubular in shape. The sleeve 104 has a first end 106, a second end 108, an outer peripheral surface 110 and an opening 112 intersecting both the first end 106 and the second end 108, forming an inner peripheral surface 114 and providing a retaining space 116 therein. In some embodiments (not shown), the second end 108 is closed, forming a closed end (not shown), and the opening 112 only intersects the first end 106 of the sleeve 104. Sleeves[,] and their construction[,] are well known in the art, and sleeves are commercially available, as are various devices and mechanisms capable of forming sleeves.

[0093] The wrapper 102 further comprises both the sleeve 104 and a floral grouping 64f (Figure 22). The sleeve 104 is adapted to receive a floral grouping 64f within the retaining space 116. The floral grouping 64f (Figure 22) may be disposed in the opening 112 in the sleeve 104 and contained substantially in the **[receiving]** retaining space 116 of the sleeve 104, as will be described in detail below.

[0094] A bonding material 24f may be disposed on at least a portion of the inner peripheral surface 114 of the sleeve 104 (not shown), or, alternatively, the bonding material 24f may be disposed on the outer peripheral surface 110 of the sleeve 104, as illustrated in Figure 24, or, in a further alternative, the bonding material 24f may be disposed on both the inner peripheral surface 114 and the outer peripheral surface 110 of the sleeve 104 (not shown).

[0095] The bonding material 24f may further comprise a color, or a combination of colors, as previously described herein. Further, the bonding material 24f may comprise at least a portion of a design on the sleeve 104. "Designs," as used herein, are defined as any geometric form, or any combination of geometric forms, for example, squares, round spots, triangles, rectangles, octagonals, or the like (not shown). "Designs" are further defined as any non-geometric, asymmetrical or fanciful forms, or any combination thereof, for example, but not by way of limitation, hearts,

balloons, flowers, lace, slogans, logos, print (any combination of letters and/or numbers), signs, human forms (real and fictional) animal forms (real and fictional), cartoon characters, and/or plant forms. It will be appreciated that such "designs" may be utilized on any embodiment shown and/or described herein.

[0096] Such a design may comprise a color, or a portion of a color, or any combination of colors. Alternatively, at least a portion of the design may be colorless, translucent, transparent, opaque, pearlescent, iridescent, or the like.

[0097] The sleeve 104 is generally tubularly shaped, but the sleeve 104 may be, by way of example but not by way of limitation, cylindrical, conical, frusto-conical, or a combination of both frusto-conical and cylindrical (not shown). Further, as long as the sleeve 104 is capable of receiving a floral grouping 64f, any shape of sleeve 104, whether geometric, non-geometric, asymmetrical and/or fanciful, may be utilized.

[0098] In a general method of use, illustrated in Figures 22-24, at least a portion of the floral grouping 64f is disposed within the sleeve 104. In some applications, the stem portion 68f of the floral grouping 64f extends into the sleeve 104 via the open first end 106, extending through the open second end 108 of the sleeve 104 and beyond the open second end 108. The bloom portion 66f of the floral grouping 64f is therefore disposed [**near**] substantially adjacent to the open first end 106 of the sleeve 104 and the bloom

portion 66f of the floral grouping 64f is visible via the open first end 106 of the sleeve 104. (Figure 22). In some instances, the bloom portion 66f of the floral grouping 64f may extend above the open first end 106 of the sleeve 104. In some applications, the first end 106 of the sleeve 104 may be closed if desired (not shown). In some circumstances, the second end 108 of the sleeve 104 may be closed if desired (not shown). It will be appreciated than when the sleeve 104 is closed at both the first end 106 and the second end 108, the sleeve 104 may be sealed about the floral grouping 64f therein, forming a breathable wrapper/package 102.

[0099] In one method of use (Figures 21-24), an operator provides a sleeve 104 (Figure 21), and a floral grouping 64f (Figure 22). The operator then disposes the floral grouping 64f into the sleeve 104 by opening the sleeve 104 at the first end 106 and assuring both that the opening 112 therein is in an open condition, and that the inner peripheral surface 114 of the sleeve 104 is somewhat expanded outward as well, the retaining space 116 sized to receive the floral grouping 64f, as shown in Figure 21. The operator then disposes the floral grouping 64f into the opening 112 in the sleeve 104 and the retaining space 116 by inserting first the stem portion 68f of the floral grouping 64f into the retaining space 116 of the sleeve 104 via the opening 112 in the first end 106, in a manner which permits a portion of the stem portion 68f to be disposed in the retaining space 116 adjacent the

second end 108 of the sleeve 104, the second end 108 generally having the narrowest diameter. In inserting the floral grouping 64f into the sleeve 104 in this manner, the bloom portion 66f is also disposed in the retaining space 116 of the sleeve 104 and the bloom portion 66f is disposed adjacent the first end 106 of the sleeve 104, the first end 106 **[having]** generally having the widest diameter. In this method, at least a portion of the stem portion 68f of the floral grouping 64f extends slightly beyond the second end 108 of the sleeve 104, and the bloom portion 66f of the floral grouping 64f is clearly visible at the **[open]** opening 112 in the first end **[112]** 106 of the sleeve 104, as shown in Figure 22.

[0100] The sleeve 104 may then be crimped about the floral grouping 64f, as shown in Figures 23-24. The crimping operation is conducted by an operator after the floral grouping 64f is disposed in the sleeve 104 by crimping at least a portion of the sleeve 104 in the area of the stem portion 68f of the floral grouping 64f, at least a portion of the bonding material 24f being disposed on this area to retain the crimped sleeve 104 in the crimped condition. Such crimping may be conducted by hand, by grasping and substantially encompassing with one or more hands the second end 108 of the sleeve 104 in the area of the bonding material 24f and evenly and firmly squeezing that portion of the sleeve 104 about the area having the bonding material 24f, thereby pressing and gathering both the sleeve 104 and the bonding material 24f against

itself and about the stem portion 68f of the floral grouping 64f. The sleeve 104 may also be crimped by using both a crimping motion (as described above) and a turning motion to create a twisted crimping, resulting in a sleeve 104 which is both crimped as previously described, and which is twisted about at least a portion of the stem portion 68f of the floral grouping 64f, the sleeve 104 near the stem portion 68f being rotated, for example but not by way of limitation, about the stem portion 68f between about one-eighth of a turn to about a full turn (not shown).

[0101] When the sleeve 104 is crimped, a plurality of overlapping folds 118 are formed in the crimped area. The plurality of overlapping folds 118 (only one overlapping fold designated by the numeral 118) resulting from the gathered, crimped material of the sleeve 104 may be connected, that is, all portions of the overlapping breathable packaging material 10f of the sleeve 104 are bondingly connected together via the bonding material 24f. A plurality of overlapping folds 118 may be formed by hand, during crimping, or by mechanical **[means]** methods. Such mechanical **[means]** methods are disclosed generally in "Article Forming System," which has been previously incorporated by reference herein. Alternatively, the crimping may be conducted in a manner in which not all of the plurality of overlapping folds **[40]** 118 are bondingly connected together. It will be appreciated that the plurality of overlapping folds 118 (connected or unconnected) are

formed primarily in the crimped area. Such crimping as described above may also be conducted by any device or mechanism known in the art and used for gathering or crimping materials.

[0102] Alternatively, the sleeve may remain uncrimped. The bonding material 24f disposed upon the sleeve 104 may cause the sleeve 104 to bondingly connect to portions of itself, causing the sleeve 104 to conform, either generally, or closely (depending, as will be appreciated, upon the amount of bonding material 24f and the amount of the breathable packaging material 10f of the sleeve 104 which overlaps and connects to itself) to the floral grouping 64f.

[0103] When the floral grouping 64f is disposed in the sleeve 104 by any method described herein or known in the art, the sleeve 104 substantially surrounds and encompasses a substantial portion of the floral grouping 64f. When the sleeve 104 is disposed about the floral grouping 64f, the sleeve 104 forms a wrapper [72] 102 which provides breathable packaging (breathable wrapper/package) for the floral grouping 64f contained therein.

[0104] It will be appreciated that the sleeve 104 has sufficient flexibility but also sufficient rigidity to both remain in and sustain its general shape, thereby substantially surrounding and encompassing the floral grouping 64f.

[0105] As illustrated in Figures 25-27, the sleeve 104 may also extend over the outer peripheral surface 88f of a flower pot 82f. The sleeve 104 may comprise a detachable upper portion 120, which is sized to substantially surround and encompass the bloom portion 65f of a floral grouping 64f disposed in the flower pot 82f, and a decorative lower portion, 122, which is sized to substantially surround and encompass the outer peripheral surface 88f of the flower pot 82f. The upper portion 120 is detachable from the lower portion 122 of the sleeve 104 via vertical perforations 124 and/or circumferential perforations 126 extending near or above the level of the open upper end 84f of the flower pot 82f, as illustrated in Figures 25-27. The sleeve 104 may comprise at least a portion of a decorative cover [80] 80f (if the detachable upper portion 120 of the sleeve 104 tears away from the decorative lower portion 122 of the sleeve 104 via vertical perforations 124 and/or circumferential perforations 126 [extending about the sleeve 104 near or above the level of the open upper end 84f of the pot 82f, as illustrated in Figures 25-27]) or, alternatively, the sleeve 104 may extend over a pot 82f already covered by a decorative cover (not shown), the sleeve 104 often being torn away from the decorative cover 80f after shipment and delivery (not shown). The sleeve 104 may have a bonding material 24f disposed thereupon such that the second end 108 of the sleeve 104 will connect to the pot 82f (not shown). Alternatively, a bonding material 24f may be disposed upon the

outer peripheral surface 88f of the flower pot 82f (not shown). In a further alternative, the bonding material 24f may be disposed on both the pot 82f and the sleeve 104 (not shown). The flower pot 82f may contain a floral grouping 64f disposed therein.

[0106] It will be appreciated that the method of disposing a flower pot 82f into the sleeve 104 is generally substantially similar to the method described above for disposing a floral grouping 64f into a sleeve 104.

[0107] It will be further understood that the sleeve 104 may be sealed about the pot 82f with floral grouping 64f therein. The sleeve may comprise a **[closed]** detachable upper portion 120 which is closed (not shown). Similarly, the sleeve 104 may seal to the pot 82 via a bonding material as previously described, or the sleeve may comprise a **[closed]** detachable lower portion 122 which is closed (not shown). Or, alternatively, the detachable upper portion 120 of the sleeve 104 may be sealed to itself above the level of the floral grouping 64f via any method **[of means]** described herein or known in the art (not shown). Such a sealed sleeve 104 forms a breathable package and/or wrapper 102 about the pot 82f/floral grouping 64f combination.

The Embodiment of Figure 28

[0108] Shown in Figure 28 and designated therein by the general reference numeral 128 is a single flower wrapper formed from a breathable packaging material 10g comprising a modified sheet of

material 11g **[for a floral grouping]** constructed from the sheet of material **[11f]** 11, as shown in either Figure 1-4 or Figures 21-27 and described in detail herein previously. In this example, the wrapper 128 is identical to the sleeve **[104g]** 104 of Figures 21 and 22 above, except that the wrapper 128 is a narrow tubular shape which is constructed to accommodate a floral grouping 64g comprising generally only a single bloom portion 66g and stem portion 68g. It will be appreciated that the wrapper 128 may comprise a single sheet of material 11g, or a plurality of sheets of material 11g.

[0109] The method of use of the wrapper 128 is identical to the method of use of the wrapper 102 shown in Figures 21-24. If a single sheet of material 11g is used, the method of use is identical to that shown for Figures 12-15 and described in detail herein above.

The Embodiments of Figures 29-30

[0110] Shown in Figures 29-30 and designated therein by the general reference numeral **[11h]** 10h is a breathable packaging material comprising a modified sheet of material 11h forming a breathable package 130 for fresh produce 132, the sheet of material 11h being constructed exactly like the sheet of material 11, shown in Figures 1-4 and described in detail herein previously, except that the sheet of material 11h is transparent[,] and **[except that**

the sheet of material 11h] has a bonding material 24h disposed near the outer periphery 15h of the sheet of material 11h.

[0111] In a method of use, the above-referenced sheet of material 11h is provided, as is at least one item of fresh produce 132, in this instance, an apple. "Fresh produce", as used herein, includes, but not by way of limitation, fresh vegetables, meat, fruit, dairy products, and the like. "Food" as used herein means any edible item. At least one item of fresh produce 132 is placed on the upper surface 12h of the sheet of material 11h, as shown in Figure 29, the item being disposed near the first side 16h of the sheet of material 11h.

[0112] A portion of the sheet of material 11h is shown overlapped over the item of fresh produce 132 (termed the overlapping portion 134), and the bonding material 24h of the overlapping portion 134 of the sheet of material 11h is then aligned with the non-overlapping portion 136 of the sheet of material 11h upon which the item of fresh produce 132 rests. The bonding material 24h of the overlapping portion 134 is then brought into contact and sealed to the bonding material 24h of the non-overlapping portion 136 of the sheet of material 11h as shown in Figure 30, thereby sealing the item of fresh produce 132 within the sheet of material 11h, forming a breathable package 130. It will be appreciated that medical supplies/equipment (not shown) may be wrapped in a similar manner. It will further be understood that

other similar as well as dissimilar methods of wrapping fresh produce and/or medical equipment/supplies are known in the art. "Medical supplies/equipment" as used herein means any disposable or non- disposable item, such as, but not by way of limitation, forceps, sutures, bandages, retractors, and the like.

[0113] Further, [is] it will be understood that pharmaceutical products may be wrapped in a similar manner. It will further be understood that other similar as well as dissimilar methods of wrapping pharmaceutical products are known in the art. "Pharmaceutical products" as used herein includes, but is not limited to, capsules, tablets, containers containing pharmaceutical products, and the like.

[0114] It will be understood that any embodiment shown and/or described herein, or portion of any embodiment, may be combined with any other embodiment or portion thereof as illustrated and/or described herein. Similarly, it will be appreciated that any method shown and/or described herein, or any step or portion of any method may be combined with any other method or steps thereof shown and/or described herein. To this end, it will be appreciated that all materials and methods for wrapping, forming decorative covers, forming wrappers, and the like shown and/or described herein may comprise or be formed into breathable packages, i.e., packages having controlled atmosphere characteristics.

[0115] Changes may be made in the construction and the operation of the various components, elements and assemblies described herein or in the steps or the sequence of steps of the methods described herein without departing from the spirit and scope of the invention as defined in the following claims.